

## GIANT GROWTH WITH LASER LIGHT

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/Article by Scott Hill, biophysicist and parapsychologist,  
Copenhagen/

Alma-Ata, the capital of the Kazakh SSR, was the scene of an unusual conference in October 1976. Its theme was frontier areas of science. Scott Hill, (cf. picture), an Esotera staffer, was one of three guests from the West invited to this meeting because of their close contacts with Soviet scientists. In this part of his detailed report, he describes Russian results with the use of laser light for promotion of plant growth.

/Text/ During the author's stay at the Congress on Frontier Sciences held in Alma-Ata in 1976, he had occasion to take various meals which included vegetables. The vegetables were from the agricultural research station operated at the conference site. He learned that the vegetables had been treated with laser light. According to Dr Inyushin, who at 35 is the youngest biology professor in the USSR, plants grow more rapidly, attain a larger size and bear more fruit after they (or only the seeds) have been irradiated for a short time with laser light. This is not an insignificant increase of 1 or 2 percent but one on the order of 30 percent. This is of course taken very seriously in a country that must import its food at a time of inflationary rates on the international food market.

The author discovered by chance that this technique had also been used since 1970 by a team of Australian scientists who, as strange as it appears, did not have any knowledge of the Russian work (at least they cited only British sources in their report which appeared in the British science magazine Nature.) This constituted a slight puzzle: Who had actually discovered this technique? The author found at least five different groups in various parts of the world that appeared

to have stumbled on the same thought independently and begun experimental development. There were two groups in West Germany, one in Australia, one in Hungary and of course the Soviets themselves. Did they know about each other? The author found it strange that none of the groups mentioned written references to any other group in their reports. Concomitant discoveries -- synchronism or stealing of ideas? The author does not know yet.

In Part II of this report ("Light Surgery," Esotera p 107, 2/77), we explained that patients showed noteworthy improvement when they are treated with laser beams. The individuals involved of course knew that they were receiving this therapy and probably thought that it should help them. Could it be (as some skeptics assume) that the disease was cured by psychosomatic factors or more precisely by auto-suggestion? In this modern age when physicians are beginning to think about the fact that nearly all diseases, including cancer, have at least one psychosomatic component, could it not be that this knowledge, even if it remains unconscious, might have produced the amazing results. A clearcut method of checking this would be to use lower forms of life where there is no "psyche", for example in the plant kingdom. We shall therefore consider "Gurvich radiation" (cf. Part I, "Healing With Light", Esotera, p 13, 1/77) in greater detail:

#### Detection of Mitogenetic Radiation

Although the use of "biological detectors" is the simplest way to detect effects of mitogenetic radiation, many biologists found this procedure unsatisfactory. However, several early investigators such as Rodionov and Frank (1934) and the Germans Siebert and Seffert (1936) were able to detect UV emission in cells with the use of gas-discharge counters. Russian researchers have been using "photomultipliers" that count photons since 1957.

It is not easy to count small quantities of photons. The mitogenetic rays are very weak and they adhere closely to the "background" rays. Consequently, the photon detectors must be cooled to very low temperatures (liquid nitrogen or even liquid hydrogen) in order to reduce the "dark current" enough so that  $10^5$  photons/sq cm can be detected. This is a very small flow of photons. It therefore took until the mid-sixties for cooling technology to be sufficiently developed to obtain reliable detection.

A few other unusual circumstances associated with Gurvich radiation made it difficult to accept the matter as a real phenomenon.

There was the fact that only weak rays could be used. If the UV light on the biological material was too strong, the effect was impeded. The cellular chain reaction of mitoses (cell nucleus divisions) also stopped if the volume of the cell culture was reduced below a "critical mass." Both reverse tendencies contributed to making the entire matter appear ridiculous. However, if we consider them in the proper way, these aspects make it possible to understand the true mechanism of the Gurvich effect.

The parameters of "dark" chemoluminescence in the UV range are connected with certain properties of the light-emitting molecule, such as its structure, probabilities and energy quantities in electronic transmission and binding properties. Russian investigators suspect that weakly bound electrons and groups of free radicals play a part and they therefore developed a special theory of "bioplasma", which allegedly serves as an explanation for the weak reciprocal effect.

#### Virus via Television?

To demonstrate that the radiation exists is one thing. However, it is quite a different matter to show that the emission and absorption of UV is one of the control mechanisms in the cell rather than a rare and random effect on the system in question. Could the "mitogenetic radiation" be a type of "waste light," the excess photons from a much stronger energetic process? Hence, e.g. the mere observation that the emission of several cells affects other cells does not yet signify that such an effect is of any biological importance. Similarly, the theoretical possibility of transference of extensive information at frequencies in the visible range of electromagnet radiation (light) does not encompass the fact that the information required for activation and control of the various cyto-chemical\* processes is received in precisely this manner (this is assumed for example by Kasnachejev and his associates). Can mitosis be transmitted and received like a radio broadcast?

We must bear the above in mind in the discussion of (even) wilder conclusions that were suggested from the work of Gurvich-Kasnachejev by the Norwegian physician V. Schjelderup. He notes that if a bacterial culture or cell culture is intoxicated or infected with a virus and if a neighboring culture dies due to some reciprocal electromagnetic action, it is not the virus itself which kills but the electromagnetic representation of this virus. Ultimately, this means that with suitable techniques

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\*Cyto... = prefix of compounds that mean cell, cell-.

this electromagnetic "image" of the virus can perhaps be emitted by television to infect cultures -- or humans(?), that are very far away.

We hasten to add that this was in no way demonstrated as a possibility. Mitogenetic radiation is effective only over short distances of a few centimeters and there is no certainty that this radiation can be transmitted by television, much less in the proper dosage. However, all research in this area is not openly published. The saying goes; a little knowledge is a dangerous thing... However, the final results may turn out, Soviet biologists concur that these reciprocal effects should continue to be studied. Scientists in Kazakhstan have applied the theory in experiments to increase the productivity of plant growth in agriculture and in medical research for new therapeutic procedures. It is only a matter of time until biologists in the West reach the same conclusions.

#### Ten Million Cells Per Second

The German biophysicist Dr Fritz A. Popp has already carried out theoretical work on the subject at Marburg University (cf. also Bild der Wissenschaft, Jan. 1976). Popp points out that in the human body more than ten million cells die every second. Normally, these cells must be replaced by new cells, which are created from the old cells by the process of mitosis. Whatever the system that regulates this equilibrium may be, it must be controlled in a very sensitive manner and it must "know" at any given time how many dead cells are to be replaced. Could electromagnetic waves be the answer?

Although the medical significance of the use of laser biostimulation is sufficiently puzzling, other developments related to the malthusian\* growth of the population and the flattening curve of food production may be more important. The satirical author Jonathan Swift had a solution: Instead of producing more and more children we should eat them! Governments must develop plans that are more feasible, such as methods geared to an increase in the size of foods. Whoever can claim to produce such an increase, even if it is only one percent, would earn a government prize and a substantial salary besides.

#### Giant Fruits of the Future

In Kazakhstan, laser-stimulated tomatoes were enlarged to half a kilogram. The tomatoes tasted by the author also had

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\*According to the teaching of the British economic theoretician Malthus that the population shows more rapid tendential growth than crop yields (population law).

an extraordinarily sweet taste. Apples were routinely enlarged in Kazakhstan to weights of one kilogram and more, even without the aid of lasers. Tomatoes weighing half a kilogram do not appear as large there as they do to us. According to even more recent data -- and perhaps independent of the Russian, several Australian plant physiologists in Adelaide discovered that their young cabbate plants appeared to develop somewhat more when a weak red light shone on them (actually less than three milliwatts), and even when the laser was directed at the earth from more than a quarter of a mile away (approximately 400 m). In their report (*cf Nature*, 1970), they described this development as quietly as if they were explaining the newest fertilizer, even though they were working with illumination periods of only 1-3 seconds when exposing the cabbage seeds. The "response reached a maximum at approximately 100 seconds of illumination; however, illumination periods of more than 1000 seconds impeded the reaction. The results are not limited to cabbages -- a fortunate thing for the Australian population which would have a hard time if it wanted to get used to a diet of borscht.

Other plant types, such as the Japanese morning glory (*Pharbitus nil Chois var. Viltet*), altered their morphological development in response to the red laser light. The Australian scientists carried out experiments indicating that the light activates the "phytochrome system," i.e. a photosensitive mechanism that occurs in the entire plant kingdom. The Australians discovered this by chance when they used ordinary flood lights to illuminate barley fields at night. They observed that the period in which the field of crops matured could be significantly reduced by three to four weeks. They were lucky when they tried it with laser light.

Since lasers with an output range of 2 milliwatts are in the meantime being manufactured commercially and cost only between \$100-\$500, the time is perhaps not far away when every gardner will add a little "light treatment" to the usual watering and fertilization. The Australian investigators have been working on these problems since 1970, and the Russians since 1963.

#### Light -- The Key to the Cancer Problem

Dr Fritz A. Popp of Marburg University pointed out the possibility that a specific energy transmission between a "cancer producer" and a biological receptor organ might be an important and perhaps the decisive step in the development of cancer. In summary, his theory is that humans lose ten million cells per second, the loss of which can be compensated by super rapid information. Modulated sound and light waves transmit

as biosignals between the cells the information required for regulation of cellular growth. According to Dr Popp, "Incorrect information causes cancer."

This finding appears to concur with the work of the earlier Gurvich group, but not with that of the more recent investigations in Alma-Ata. Dr Popp appears to have reached the same direction of thought independent of the Soviet investigators. For as previously indicated, light is involved in his considerations regarding the process of cancer development as the conveyer of the bio-information which, when it is incorrect perhaps gives rise to cancerous cell proliferation.

Picture captions:

P 205: Partial view of the Agricultural Research Institute for the Use of Laser Beams for Promotion of Plant Growth in Alma-Ata, Kazakhstan (USSR). Here, under laser illumination, tomatoes were "pushed up" to half a kilogram and apples up to one kilogram.

P 206: A room in the Aksai Clinical Hospital in Alma-Ata, where among other methods laser therapy is also used routinely (left: electroencephalograph, right: plesmograph and electrocardiograph).

P 207: Top: The LG-75 Soviet gas laser (25 mW, front) and the carbon dioxide gas laser (35 kW, rear) in the Alma-Ata Biophysical "Unilaboratory".  
Left: Control apparatus outside a laser treatment room.

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